

T. J. MURDOCK.
BOBBIN HOLDER.
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914,742.

Patented Mar. 9, 1909.

Fig. 1.

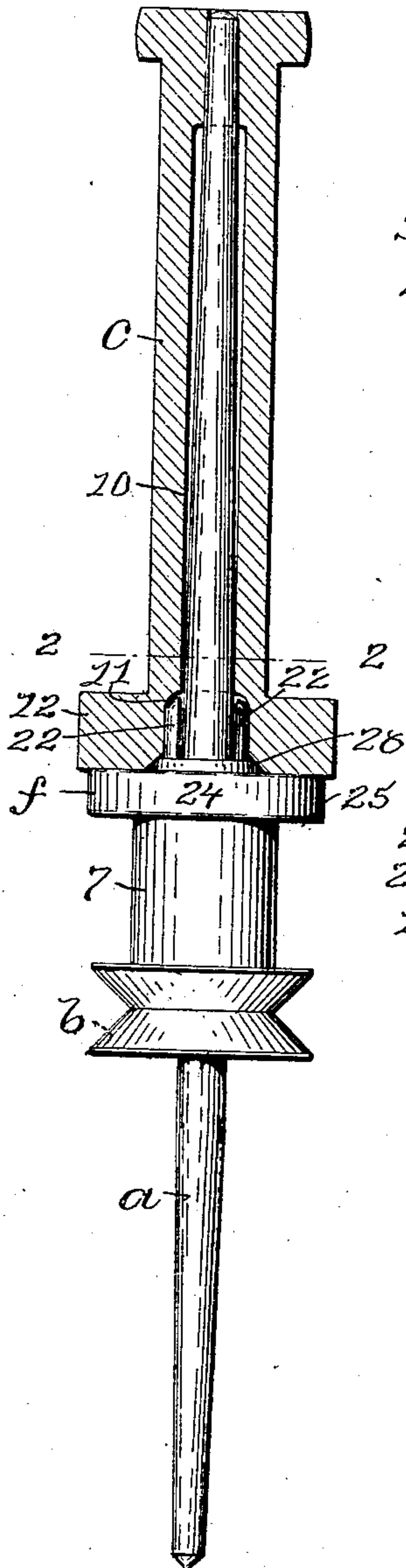


Fig. 2.

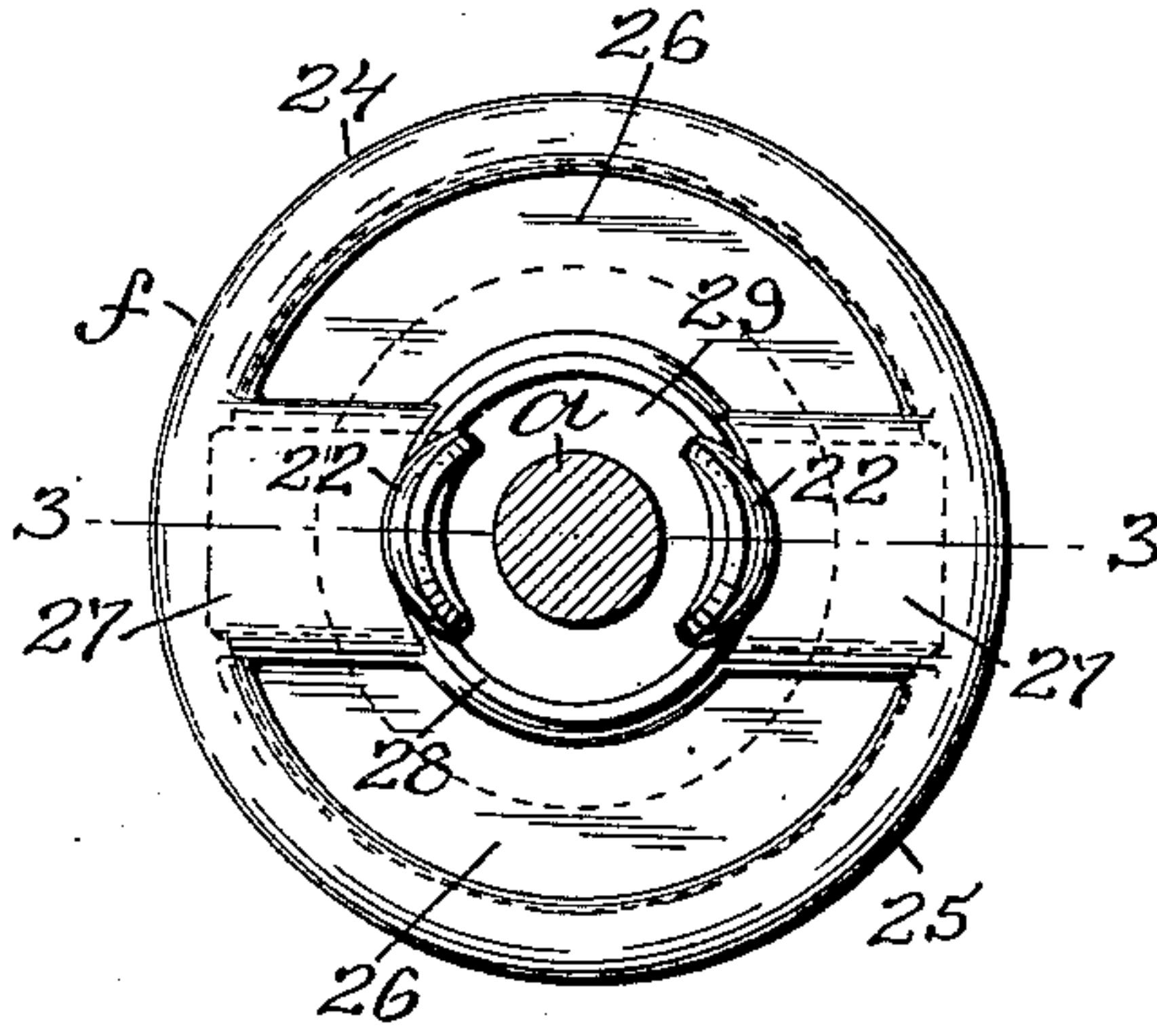


Fig. 5.

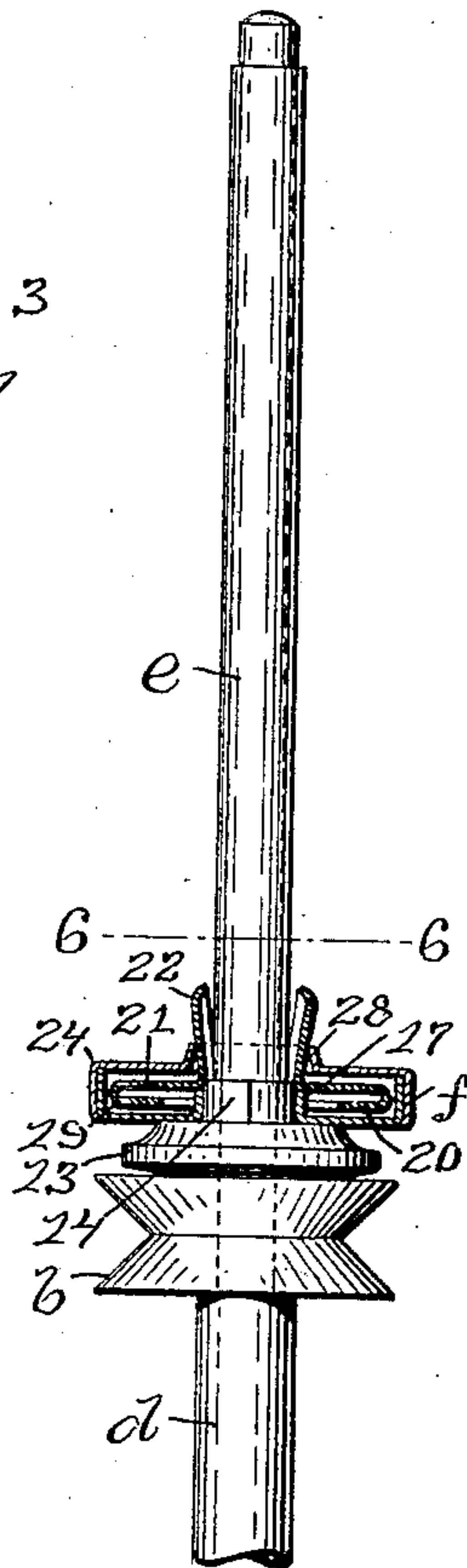


Fig. 3.

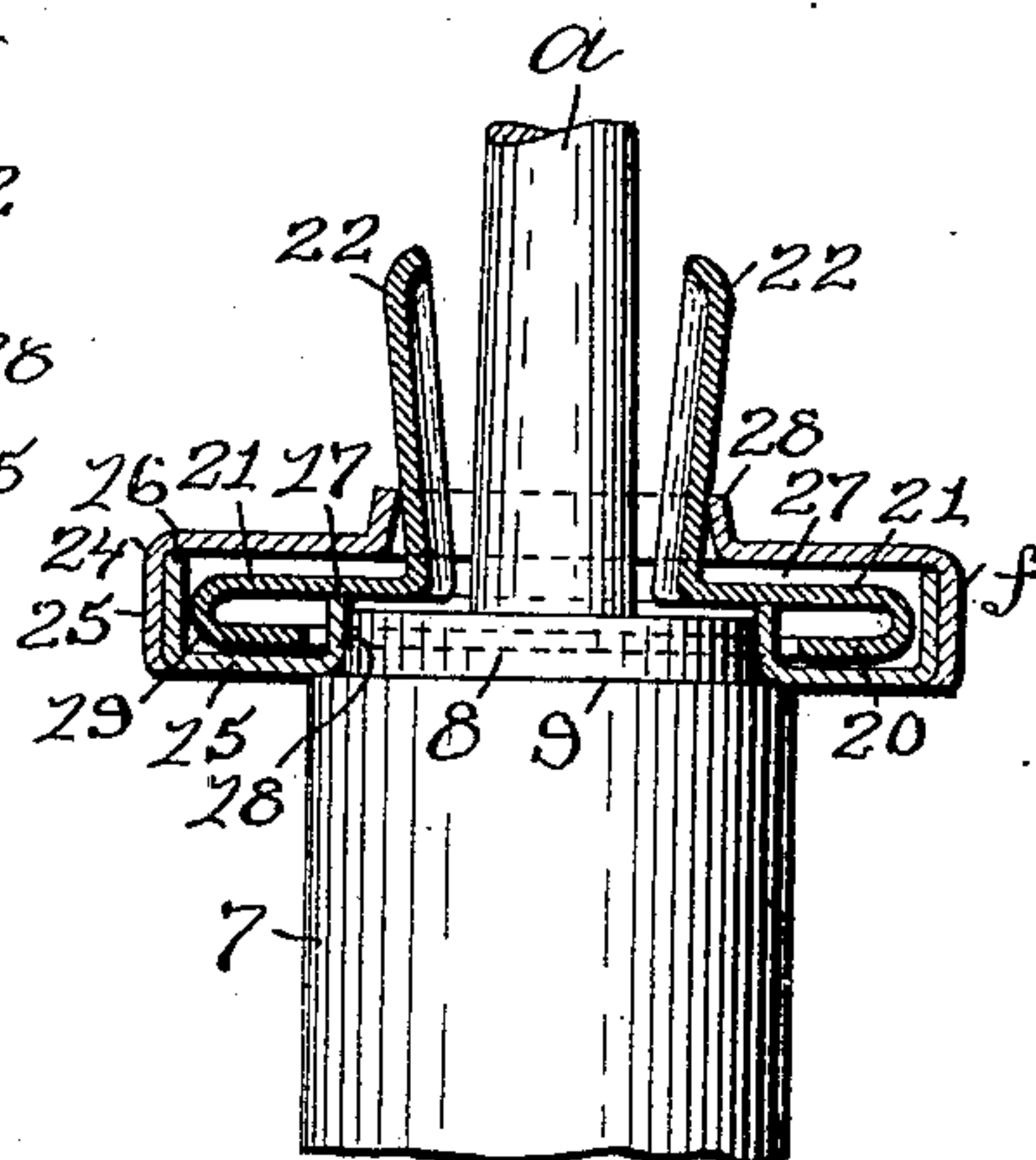


Fig. 4.

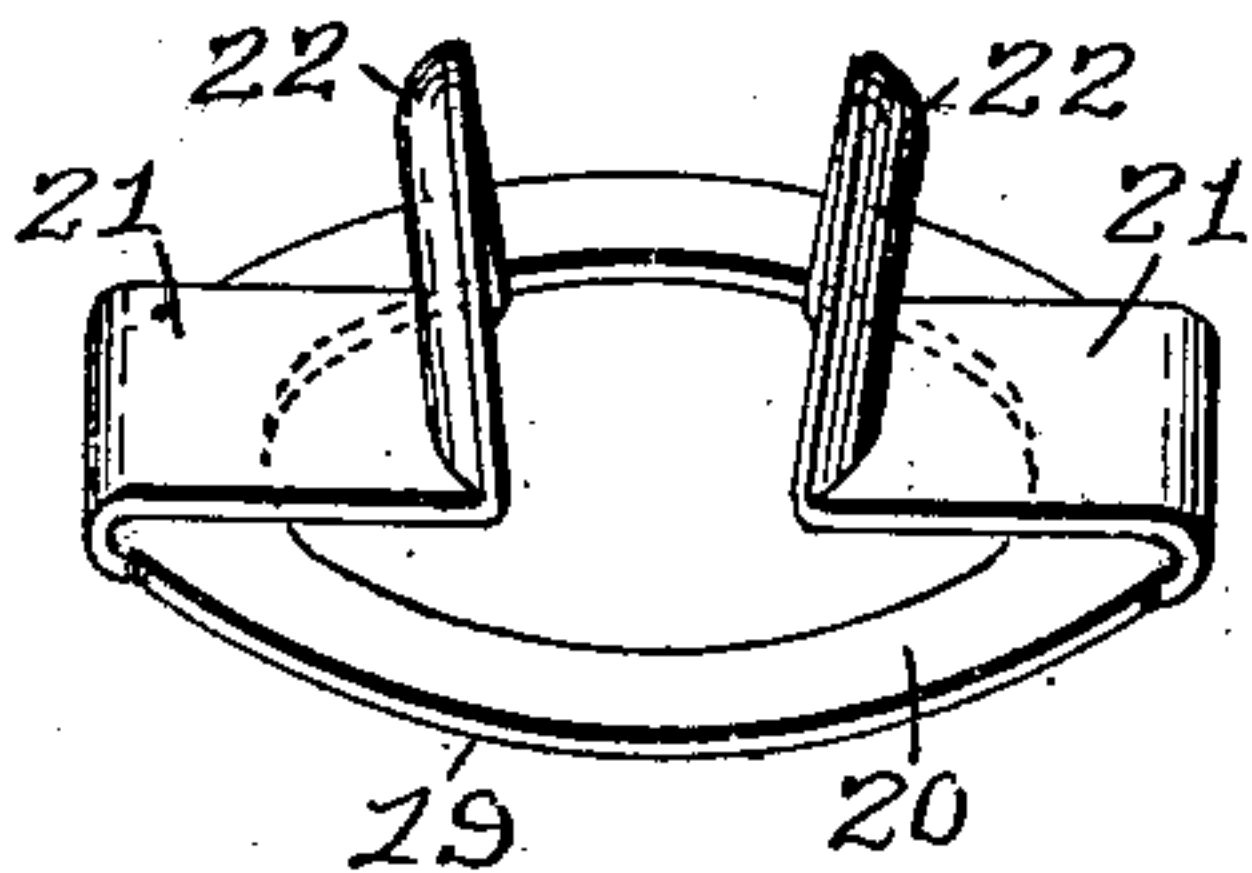
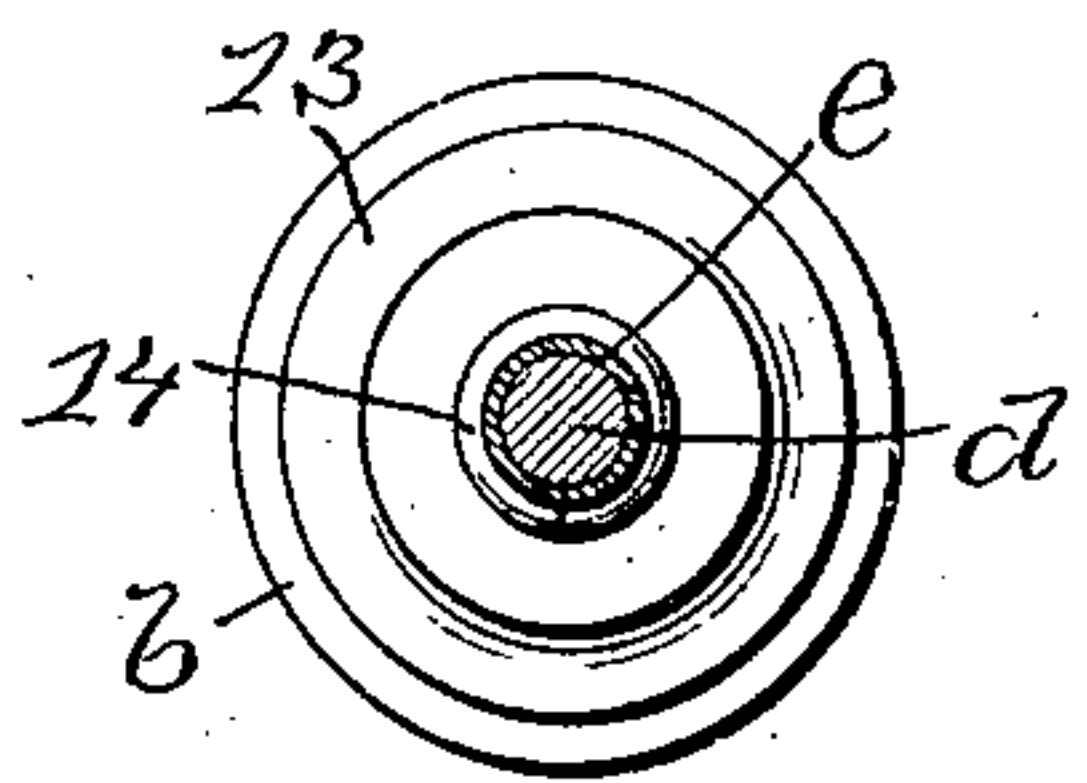


Fig. 6.



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BOBBIN-HOLDER.

No. 914,742.

Specification of Letters Patent.

Patented March 9, 1909.

Application filed April 2, 1908. Serial No. 424,704.

To all whom it may concern:

Be it known that I, THOMAS J. MURDOCK, a citizen of the United States, residing at Franklin, in the county of Norfolk and State of Massachusetts, have invented a new and useful Improvement in Bobbin-Holders, of which the following is a specification.

This invention has reference to an improvement in bobbin holders and more particularly to an improvement in internal clamping bobbin holders for frictionally securing bobbins to the spindles of spinning machines.

In the use of bobbin holders as heretofore constructed the short spring clamping jaws or arms of the holder soon lose their spring tension and are liable to bend out of shape or break, thereby ruining the utility of the holder.

The object of my invention is to improve the construction of an internal clamping bobbin holder, whereby the life of the holder is prolonged and the liability of the spring clamping jaws or arms breaking reduced to a minimum.

A further object of my invention is to simplify the construction of an internal clamping bobbin holder, thereby reducing the cost of manufacturing the holder.

My invention consists in the peculiar and novel construction of an internal clamping bobbin holder, said bobbin holder having details of construction as will be more fully set forth hereinafter and claimed.

Figure 1 is a vertical side view of a live spindle provided with my improved bobbin holder and showing a bobbin (frictionally secured to the spindle by the holder) in section. Fig. 2 is an enlarged transverse sectional view taken on line 2 2 of Fig. 1 looking at the top of the holder with the bobbin removed. Fig. 3 is an enlarged vertical sectional view taken on line 3 3 of Fig. 2 through the holder and showing a portion of the spindle and the upper end of the whirl hub in full. Fig. 4 is an enlarged perspective view of the spring clamping jaw member removed from the holder. Fig. 5 is a vertical side view of a dead spindle provided with my improved bobbin holder shown in section, and Fig. 6 is a transverse sectional view taken on line 6 6 of Fig. 5 and showing the split ring on the whirl sleeve for securing the bobbin holder to the sleeve.

In the drawings, *a* indicates a live spindle,

b a whirl, *c* a bobbin, *d* a dead spindle, *e* a whirl sleeve, and *f* my improved internal clamping bobbin holder.

The whirl *b* has a hub 7 with a reduced upper end 8 forming an annular shoulder 9 and a central vertical hole for the live spindle *a* and is secured to the spindle by driving the hub onto the spindle in the usual way. The bobbin *c* has the usual central hole 10 for the spindle *a* merging into an enlarged circular recess 11 in the head end 12 of the bobbin, as shown in Fig. 1. The edge of the recess 11 is beveled or enlarged to facilitate the entering of the expanding internal clamping jaws of the holder into the recess. The dead spindle *d* has the usual whirl *b* and collar 13 secured to the whirl sleeve *e* which is rotatably supported on the dead spindle. A split ring 14 is secured to the sleeve *e* above the collar 13, as shown in Figs. 5 and 6, for securing the bobbin holder to the sleeve.

My improved internal clamping bobbin holder *f* consists of a circular box-shape frame 15 stamped from sheet metal and shaped to have an outer upwardly-extending annular lip 16 and an inner upwardly-extending annular lip 17 forming a round central opening 18 through which the holder is secured by driving the reduced end 8 of the whirl hub 7 into the opening 18 in the frame 15 until the frame is seated on the annular shoulder 9 of the hub, a spring expanding jaw member 19 formed integral of sheet spring metal shaped to have the flat spring ring 20, the oppositely-disposed arms 21 21 which extend upwardly and then inwardly from the periphery of the ring and the upwardly-extending internal clamping jaws 22 22 which are bent slightly outward from the inner ends of the arms 21 21, curved in cross-section to conform to the circular recess 11 in the bobbin head 12 and rounded on the ends to facilitate the entering of the jaws into the recess, as shown in Fig. 4, and a cover 24 formed of sheet metal shaped to have the downwardly-extending annular lip 25 adapted to fit over the frame 15, the depressions 26 26 in the top forming the oppositely-disposed radial cavities 27 27 in the underside of the top for the arms 21 21 of the spring expanding jaw member 19 and the inner upwardly-extending annular lip 28 forming the central opening 29 for the clamping jaws 22 22, as shown in Figs. 2 and 3.

The spring clamping jaw member 19 is placed in the frame 15, the cover 24 placed over the frame in a position for the clamping jaws to extend upwardly through the opening 29 in the cover and for the arms 21 21 on the clamping jaw member to enter the cavities 27 27 in the cover and the cover secured to the frame by rolling the edge of the annular lip 25 on the cover over the frame 15, as shown in Fig. 3. The spring clamping jaw member 19 is now held against rotating in the holder by the arms 21 21 on the clamping jaw member 19 engaging with the sides of the cavities 27 27 in the cover, the depth of which is sufficient to allow for the upward movement of the arms 21 21 in forcing the bobbin over the jaws of the holder.

The bobbin holder *f* is secured to the whirl sleeve *e* on the dead spindle *d* by placing the holder over the sleeve in a position for the split ring 14 to enter the central opening 18 in the holder (which is now reduced in size) and forcing the holder down over the split ring, thereby clamping the ring to the sleeve and fastening the holder to the ring against the collar 13, as shown in Fig. 5.

In the operation of my improved internal clamping bobbin holder the expanding clamping jaws 22 22 are held in their normal expanded position against the edge of the inner annular lip 28 of the cover 24 by the spring tension of the flat spring ring 20 of the clamping jaw member 19. The arms 21 21 of the spring clamping jaw member 19 now engage with the edge of the annular lip 17 which acts as a fulcrum for the arms, as shown in Fig. 3, or with the upper edge of the split ring 14, as shown in Fig. 5. A bobbin *c* having a circular recess 11 in the head end 12 is placed on the spindle *a* or on the sleeve *e* and forced downward over the clamping jaws 22 22 of the bobbin holder, contracting the clamping jaws of the holder against the tension of the spring ring 20, as shown in Fig. 1. The bobbin is now frictionally secured to the holder by the clamping jaws expanding against the annular wall of the recess 11 in the bobbin head 12. The clamping jaws are materially assisted in entering the recess in the bobbin head by the rounded construction of the jaw lips and the beveled or enlarged edge of the recess. The holder is made preferably smaller than the bobbin head and has a smooth exterior finish.

It is evident that the spring clamping jaw member 19 could be constructed to have three or four of the arms 21 21 with the clamping jaws 22 22 if desired without materially affecting the spirit of my invention.

Having thus described my invention, I claim as new and desire to secure by Letters Patent:—

1. A bobbin holder comprising a hollow frame, an expanding jaw member having a flat spring body in which is a central opening,

arms extending inwardly from the periphery of the spring body and parallel with the body, upwardly-extending jaws on the arms shaped to fit a recess in a bobbin head, means for securing the expanding jaw member in the frame, means for holding the expanding jaw member against rotation in the frame, means for limiting the expanding movement of the jaws, and means for securing the frame to a spindle.

2. In a bobbin holder, the combination of a circular box-shaped frame 15 having an outer annular lip 16 and an inner annular lip 17 forming a central opening 18, an expanding jaw member 19 having a flat spring ring 20, oppositely-disposed arms 21 21 which extend upwardly and then inwardly from the periphery of the ring, and the upwardly extending clamping jaws 22 22 shaped to fit a recess in a bobbin head, and a cover 24 having the outer annular lip 25, the depressions 26 26 in the top forming the oppositely-disposed radial cavities 27 27 in the underside of the top for the arms 21 21 of the expanding jaw member 19, and the inner annular lip 28 forming the central opening 29 for the clamping jaws 22 22, as described.

3. In a bobbin holder, a frame U-shaped in cross section, an expanding jaw member having a flat ring-like spring body of less width than that of said frame so as to be received in the latter and have free lateral movement with respect thereto, said flat ring-like body being slidably seated on the bottom of said frame, a pair of oppositely disposed arms carried by said ring extending inwardly so as to lie parallel with the top face of said body, said arms at their free ends projecting beyond the inner wall of said frame, an upwardly extending jaw on each of said arms at their inner ends, and a cover for said frame having an opening through which said jaws project.

4. In a bobbin holder, a frame, an expanding jaw member having a flat ring-like spring body seating on the bottom of said frame a pair of opposite arms extending toward each other carried by said body, being spaced therefrom and disposed parallel thereto, and an upwardly extending jaw carried by each arm.

5. In a bobbin holder, a frame, an expanding jaw member composed of a flat ring-like spring body arranged in said frame, arms carried by said body, a jaw carried by each arm, a cover having portions which extend inwardly and engage on opposite sides of said arms, and a part carried by said cover to engage the rear faces of said jaws at points intermediate their ends.

6. In a bobbin holder, a frame, a ring-like spring body arranged in said frame so as to have lateral and vertical movement with respect thereto, a pair of arms carried by said

body, and a jaw carried by each arm, said jaws being held under tension by virtue of said spring body.

5 7. In a bobbin holder, a frame, an upwardly extending lip carried by said frame, a spring body arranged in said frame so as to be movable laterally and vertically thereof, a pair of arms carried by said body, said arms seating on top of said lip, the latter serving

as a fulcrum for the arms, and a jaw carried 10 by each arm.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

THOMAS J. MURDOCK.

Witnesses:

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J. A. MILLER.